

General Information

1992

Video: 4 Heads Rotary

Audio: Fixed Head 1CH

Covers Models

Akai VS-F441/F450

Akai VS-F455/F490

Akai VS-F497

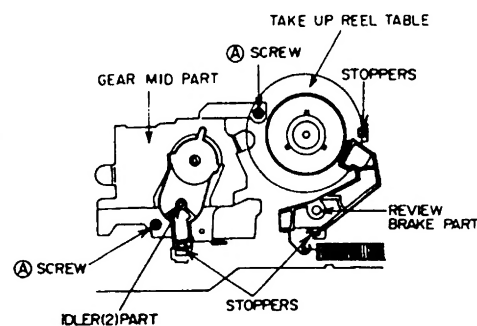
Matrix		
Item	See Model	
Mechanical Parts View	Akai VS-422/425 89/90 Book.	
Mechanical Adjustments	Akai VS-F10/F11 91/92 Book.	
Replacement of Idler	Akai VS-F410	
Back Tension Adjustment	Akai VS-F260	
Power Supply - VS-F490	Akai VS-F260	
Power Supply - VS-F440	Akai VS-F260	
Power Supply - VS-F441/F450/F455/F490/F497	Akai VS-F260	
Main Diagram 1/3	Akai VS-F260	
Main Diagram (B)	Akai VS-F260	
Operation (A)	Akai VS-F260	
VPST/PDC	Akai VS-F260	
VIF Unit	Akai VS-F260	
R/C Others	Akai VS-F260	

Head Motors and Miscellaneous	
Part No.	Description
All models:	
BV-V1123A410B	Lower Drum BLK X450DGN
BV-V1123A420B	Upper Drum BLK X450EGN
BM-401296J1	Motor E20EL89 (Drum Motor)
For Models:	
VS-F440EA/EDG/ED1/EK/EM/EO/ EOG-V/EOH	
VS-F441EA/F450-EOH	
VS-F455EOH	
HR-405340J	Head Combo HVMZA1121A
HE-390013J	Head E HVFME0020A
For Models:	
VS-F480EK-V/EOG-V	
VS-F490EM/EO/EOH/ES	
VS-F497EOH	
HR-405340J	Head Combo HVMZA1121A
HE-390013J	Head HVFME0020A
For Models:	
VS-F480EK-V/EOG-V	
VS-F490EM/EO/EOH/ES	
VS-F497EOH	
BM-400682J1	Motor DFX-67B3VWB1 (Capstan Motor)
BM-387503J	Motor Part (Loading Motor)

Recommended Safety Parts		
Item	Part No.	Description
Models: EA/EDI		
D1 - D12	ED-511907	D Silicon 1N4002 100/1.0A
D16	ED-404029J	D Zener H UTZJ10B T26
D18	ED-511907	D Silicon 1N4002 100/1.0A
FR1 , FR3	ER-408375J	R Fuse V TO5RF25SCPVTP1/4WR12K
FR2, FR4	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
FR5	ER-400605J	R Fuse V TO5 ERD2FCV1/4W15ROG
TR1	ET-381175J	TR 2SD1856
TR2, TR7	ET-366365	TR 2SB1185 E,F
TR3, TR4, TR5	ET-405622J	TR 2SD2061 E,F
TR6	ET-391025J	TR 2SD2012
Model: EM		
C101	EC-389414J	C CE V DE7 B102K 400AC
D3, D4	ED-511907	D Silicon 1N4002 100/1.0A
D6, D11	ED-386226J	D Schottky RB100AT-32T26 40/1
D8	ED-386226J	D Schottky RB100AT-32T26 30/1
D16	ED-307572	D Silicon H 1SS131
D17, D18, D71		
D72, D73, D74		
D101	ED-511907	D Silicon 1N4002 100/1.0A
FR1	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
FR2	ER-408375J	R Fuse V TO5RF25SCPVTP1/4WR12K
FR3	ER-400605J	R Fuse V TO5ERD2FCV 1/4W15ROG
FR4	ER-400689J	R Fuse V TO5RF25SCVTP1/4WR68K
FR5	ER-405441J	R Fuse V TO5RF25SCVTP1/4WR68K
FR101	ER-400689J	R Fuse V TO5RF25SCVTP1/4WR68K
FR102	ER-401039J	R Fuse V TO5ERD2FCV 1/4W 4R7J
RL101	EQ-400153J	Relay POW AG2013 1TR 12V
TR1, TR5		
TR9, TR13	ET-366365	TR 2SB1185 E,F
TR2, TR7	ET-405622J	TR 2SD2061 E,F
TR4	ET-366168	TR 2SD1292 Q,R
TR12	ET-405622J	TR 2SD2061 E,F
TR107	ET-404195J	TR 2SC4486 S,T T05
IC1	EI-381575J	IC BA6121
19A	BT-410487J	Trans POW V1130 EA (EM)
19B	BT-410489J	Trans POW V1130 ES (ED1)
19C	BT-410488J	Trans POW V1130 EM (EM)
Models: F440EK/F490ES		
D1 - D12	ED-511907	D Silicon 1N4002 100/1.0A
D16	ED-404029J	D Zener H UTZJ10B T26
FR1 , FR3	ER-408375J	R Fuse V TO5RF25SCP1/4WR12K
FR2, FR4	ER-400728J	R Fuse V TO5RF25SCVTP1/4WR12K
FR5	ER-400605J	R Fuse V TO5ERD2FCV 1/4W15ROG
TR1	ET-381175J	TR 2SD1856
TR2, TR7	ET-366365	TR2SB1185 E,F
TR3 - TR6	ET-405622J	TR2SD2061 E,F
Model: F480EK		
D3, D4	ED-511907	D Silicon 1N4002 100/1.0A
D6, D8, D11	ED-386226J	D Schottky RB100AT-32T26 40/1
D17, D18, D71		
D72, D73, D74	ED-511907	D Silicon 1N4002 100/1.0A
FR1	ER-400728J	R Fuse V TO5 RF25SCVTP1/4WR12K
FR2	ER-408375J	R Fuse V TO5 RF25SCPVT1/4WR12K
FR3	ER-400605J	R Fuse V TO5 ERD2FCV 1/4W15ROG
FR4	ER-400689J	R Fuse V TO5 RF25SCVTP1/4WR68K
FR5	ER-405441J	R Fuse V TO5 RF25SCVTP1/4WR27K
TR1, TR5		
TR9, TR13	ET-366365	TR 2SB1185 E,F
TR12	ET-405622J	TR 2SD2061 E,F
Model: F480EK		
IC1	EI-381575J	IC BA6121
TR2, TR7	ET-405622J	TR 2SD2061 E,F
TR4	ET-404195J	TR 2SC4486 S,T T05
	BT-403872J	Trans Pow V1130 EK (440EK)
	BT-403883J	Trans Pow V1130 EOG-V (480EK)
	BT-410489J	Trans Pow V1130 ES (490ES)

Mechanical Parts List		Description		Part No.	Description		Part No.
Description		Part No.					
All Models:							
Head Drum Block				Slider Front Loading	ML-387428J	SP Pull Main Brake	ZG-387320J
Base Drum	MA-38747J3			Slider Pinch Part	ML-387431J1	SP Pull Review Brake	ZG-387323J
BID26X08STL CMT	ZS-563444			SLIT W17X032X025PSL	ZW-374445	SP Pull Tension (2)	ZG-395470J
BID30X06STL CMT	ZS-379405			SP Loading Brake	ZG-387467J	SP Push A/C	ZG-387438J1
BID30X08STL CMT	ZS-321298			SP Plate Earth	ZG-392294J	SP Torsion Arm Damper	ZG-395567J
				SP Plate Holder	ZG-387348J1	SP Torsion Damper (S)	ZG-387421J
DT BID30X06STL CMT				SP Pull Main Brake	ZG-387320J	SP Torsion Damper (T)	ZG-388290J1
C080	ZS-389853J			SP Pull Review Brake	ZG-387323J	SP Torsion Joint (2)	ZG-392831J
Earth Brush Part AG	VT-401282J			SP Pull Tension	ZG-387272J	SP Torsion Load (S)	ZG-387417J
				SP Push A/C	ZG-387438J1	SP Torsion Load (T)	ZG-387418J
Holder FPC	SZ-387388J			SP Torsion Arm Damper	ZG-395567J	SP Torsion Release	ZG-387420J1
Lower Drum BLK X450EGN	BV-V1123A410B			SP Torsion Damper (S)	ZG-387421J	SP Torsion Review	ZG-387282J
MOTOR E20EL89				SP Torsion Damper (T)	ZG-8290J1	ST BID30X06STL CMT	ZS-358936
(Drum Motor)	BM-401296J1			SP Torsion Joint (2)	ZG-392831J	ST BID30X12STL CMT	ZS-336714
				SP Torsion Load (S)	ZG-387417J		
PAN26X12STL CMT	ZS-467796			SP Torsion Load (T)	ZG-387418J	Tension Arm Blk F600EA	BL-V1123A050A
PAN30X06STL CMT	ZS-379350			SP Torsion Release	ZG-387420J1	Holder Lever Tension	SZ-3872631J4
				SP Torsion Review	ZG-387282J	Tension Band Part	ML-390768J4
ST BID30X12STL CMT	ZS-336714					Tension Brake Part	MZ-395471J3
				For Models:			
Upper Drum BLK X450EGN	BV-V1123A420B			VS-F490EM/EO/EOH/ES			
				VS-F497EOH			
				VS-F480EK-V/EOG-V			
				6SET20X030SCM PKR FP	ZS-374458	Arm Coupling	ML-387311J2
				6SET30X080SCM PKR CP	ZG-373900	Belt Capstan (3)	MB-407117J
						PC (#) Sensor (2)KFX	EA-404543J
				Arm Damper	ML-391745J3	BID30X03STL CMT	ZS-425981
				Arm Lid Opener	ML-387350J1		
				Arm Loading BLK 425EA	BL-V1102A140A	Capstan Brake Part	LK-387458J2
				Arm Pinch Roller		Cord FFC P1.25 L=12013P (WP1)	EW-389313J
				BLK F410EK	BL-V1130A160A		
				Arm Review Part	ML-387277J3	D LED GL451 Infrared (D1)	ED-390011J
				Arm Shutter	ML-387349J2	Detector SG-105LF	
						(PH1)(PH2)	ET-403420J
				BID30X08STL CMT	ZS-321298	Disk Clutch (2) Part	MZ-404577J
				Cassette Load BLK 425EA	BV-V1102A150A		
				Cushion Cover	SZ-391866J1	Gear Cam Slider (3)	MZ-404538J
				DISK (3) Part	MT-404547J	Gear Front Loading	MZ-387333J
				DT BID30X06STL		Gear Toggle(S) BLK 425EA	MZ-V1102A090A
				CMT C080	ZS-389853J	Gear Toggle(T) BLK 425EA	MZ-V1102A100A
						Gear Worm (2)	MZ-401686J1
				Gear Eject	MZ-387335J	Gear Worm Wheel	MZ-387332J
				Gear MID Part	MZ-404995J		
				Guide Front (2)	SE-395554J	Holder D-LED	MZ-387430J
				Guide Roller D8 Part	VT-387394J1	Holder Photo Sensor (2)	MZ-404542J
						Holder S Sensor	MZ-387445J
				Head Combo HVMZA1121A	HR-405340J	Holder Thrust Worm	MR-387406J
				Head E HVFME0020A	HE-390013J		
				Holder FE Head Part B	MZ-402760J2	Lever Trigger	ML-387402J1
				Idler (2) Part	MI-404552J	Motor DFX-67B3VWB1 (Capstan Motor)	BM-400682J1
						Motor Part (Loading Motor)	BM-387503J
				Leader S BLK 425EA	BV-V1102A070A		
				Leader T BLK 425EA	BV-V1102A080A	PT BID26X06STL CMT	ZS-365149
				Lever Damper (S)	ML-387345J	PT BID26X10STL CMT	ZS-389950J
				Lever Damper (T)	ML-387346J	Pulley Trigger (2)	MR-391968J
				Lever Lock Release	ML-387344J	PW26X060X050PSL	ZW-389923J
				Main Brake (S) Part	ML-387316J	Slider Brake (3) Part	ML-404567J1
				Main Brake (T) Part	ML-387318J	Slider Trigger (2)	ML-404944J
				Mecha Deck BLK F410EK	B-V1130A020C	SLIT W21X040X050PSL	ZW-387492J
				Nut Review	ZW-401776J	Socket 174074-5 SP (P1)	EJ-381837J
						Socket Housing	
				PAN20X02STL BZN PS1	ZS-404844J	5062-30-10-13 (PS1)	EJ-387497J
				Pinch Roller (2) Part	MP-404852J	SP Pull Capstan Brake	ZG-387502J
				Plate Upper	MZ-387351J2	SP Pull Slider	ZG-387468J
				PW31X110X050PSL	ZW-389814J	SP Pull Toggle	ZG-387413J1
						SP Torsion Coupling	ZG-387403J
				Retaining Ring Grip		SP Trigger	ZG-387443J
				380STL ACP	ZW-332843	ST BID30X06STL CMT	ZS-358936
				Review Brake (3) Part	ML-407119J	SW Leaf MTS10110MPC1	ES-373099
				Roller Impedance	MR-387286J1	SW Mode Select	
						MMS000702LBO (SW1)	ES-387465J
				Slider Front Loading	ML-387428J		
				Slider Pinch Part	ML-387431J1	TR Photo PN268 (TR1)	ET-361490
				SLIT W17X032X025PSL	ZW-374445	TR Photo PT493F (TR4)	ET-390009J
				SP Plate Earth	ZG-392294J		
				SP Plate Holder	ZG-387348J1		

Replacement of the Gear Mid Part (JFX Only)



1) Remove the REVIEW BRAKE PART and IDLER (2) PART.

2) Release the stopper of the TAKE UP REEL TABLE, then remove it.

3) Remove the two "A" screws then replace the GEAR MID PART as shown above.

4) Reassemble in reverse order.

Precautionary items prior to adjustments

1. The colour bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV).

The following test tapes are required.

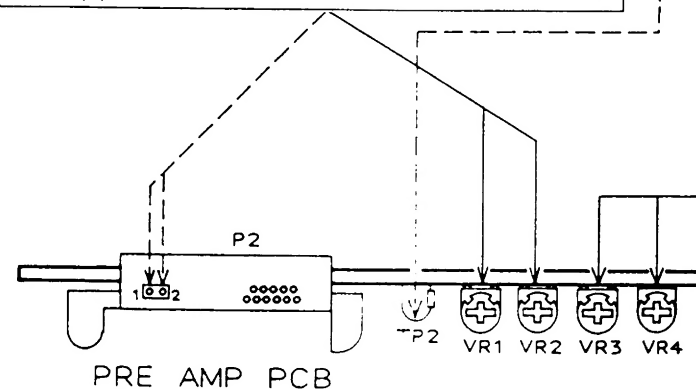
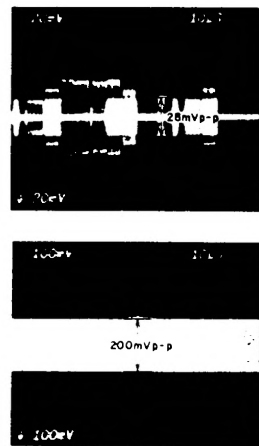
Test tape	Parts No.
TF-527BL	AT-711880
TF-530RFS	AT-751775
TF-532CBS	AT-751360
TF-553AT	AT-751785

STEP ADJUSTMENT ITEM

1. MODE and INPUT SIGNAL/TEST TAPE
2. TEST POINT and ADJ. part
3. REMARKS (*) & RESULT (*)

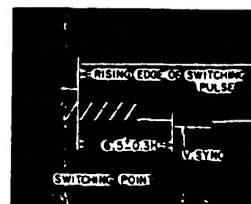
6 VIDEO REC CURRENT (LP MODE)

1. "REC" (LP MODE), PAL colour bar signal
2. P2 (REC.CURR) ① pin, ② pin & VR1 (REC-CHROMA), VR2 (REC-Y)
3. • Connect an oscilloscope's CH-1 to P2 (REC.CURR) ① pin and CH-2 to ② pin.
 - Set the oscilloscope's display mode to "ADD" mode and CH-2 polarity to "INVERTED". (Make sure to set the oscilloscope's "volt / div" SW position where the waveform is not distorted and CH-2 position should be the same as CH-1.)
 - Turn the VR2 (REC-Y) fully, counterclockwise.
 - * Adjust VR1 (REC-CHROMA) so that the chroma REC current becomes 28 mVp-p at the burst signal area.
 - * Disconnect the input signal, then adjust VR2 (REC-Y) so that the Y REC current becomes 200 mVp-p.



1 PB SWITCHING POINT

1. "PB", test tape TF-530RFS
2. TP2 (SWP), VIDEO OUT & VR301 (SW.POINT)
3. • Connect an oscilloscope's CH-1 to TP2 (SWP) for triggering and CH-2 to VIDEO OUT.
 - * Adjust VR301 so that the switching point is positioned 6.5 H from the V-SYNC left edge as shown.



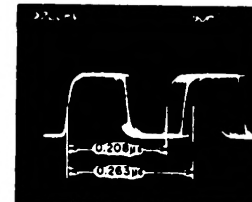
7 VIDEO PB LEVEL

1. "REC" → "PB", PAL colour bar signal
2. VIDEO OUT & VR404 (PB LEVEL)
3. • Connect an oscilloscope to VIDEO OUT
 - Make a recording on the tape, then play it back
 - * Adjust VR404 so that the PB level becomes 1.0 Vp-p



5 CARRIER SET & DEVIATION

1. "REC", PAL colour bar signal
2. TP401 (REC.Y) & VR402 (CARRIER), VR403 (DEVIATION)
3. • Connect an oscilloscope to TP401 (REC.Y)
 - * VR402 (CARRIER) : 0.263 μs (3.8 MHz)
 - * VR403 (DEVIATION) : 0.208 μs (4.8 MHz)



3 AUDIO REC BIAS

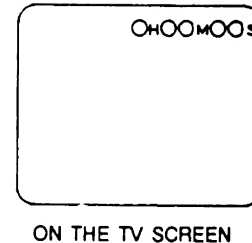
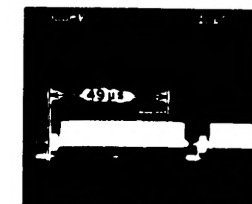
1. "REC", No signal input
2. P801 ① pin, ② pin & VR801
3. • Connect an AC voltmeter to P806 ① pin (GND side) and ② pin. (Never connect the AC voltmeter's GND to the VCR's ground.)
 - * Adjust VR801 so that the reading on the AC voltmeter becomes 2.4 mV

2 AUDIO PB LEVEL

1. "PB", test tape TF-527BL
2. AUDIO OUT & VR802
3. • Connect AC voltmeter to AUDIO OUT
 - * -5 dBs

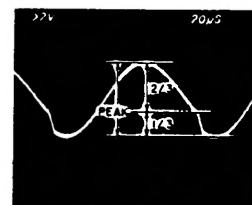
8 CHARACTER POSITION

1. "E-E" (STOP mode), No signal input
2. VIDEO OUT, TV screen & VC601 (IMS)
3. • Press the "DISPLAY" button once on the remote control to display the elapsed tape counter.
 - Connect an oscilloscope to VIDEO OUT
 - * Adjust VC601 (IMS) so that the right end of the IMS signal becomes 49 μs from the H-SYNC as shown.



9 P/S AUTO SENSITIVITY (EM/EDG/EOG-V ONLY)

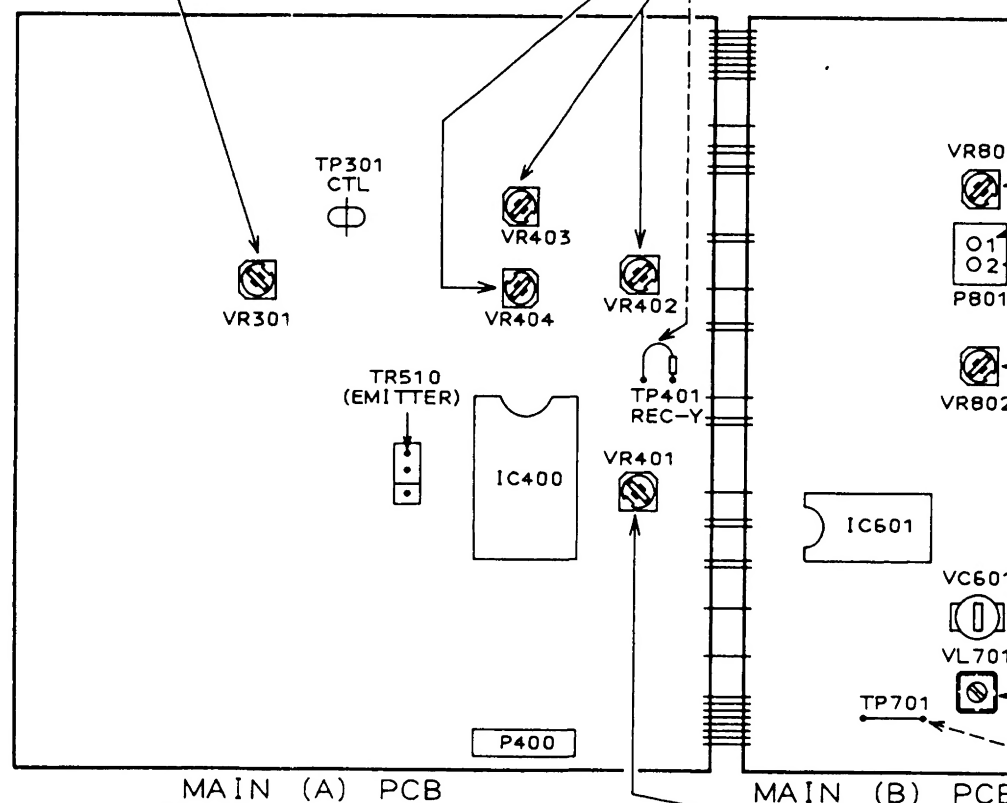
1. "E-E" (STOP mode), SECAM colour bar signal
2. TP701 (P/S SENS), VL701 (P/S SENS)
3. • Connect an oscilloscope to TP701 (P/S SENS)
 - * Adjust the VL701 so that the distorted point of the waveform becomes 1/3 from the bottom, as shown.



10 ENVELOPE DETECT (I-HQ)

(This adjustment should be performed in the "TEST" mode.) To set the VCR to the "TEST MODE", press and hold both the "POWER" and "EJECT" buttons on the front panel, then plug in the AC power cord. The TEST MODE can be cancelled by disconnecting the AC power cord or simply by pressing the RESET button on the front panel.

1. "REC" → "PB", PAL colour bar signal
2. FL display & VR3, VR4
3. • Record the PAL colour bar signal on the test tape TF-553AT and then play it back.
 - Observe the number which is displayed on the minute part of the FL display.
 - * Adjust the VR3 so that the number displayed on the FL display becomes "8D". (SP MODE)
 - * Adjust the VR4 so that the number displayed on the FL display becomes "8D". (LP MODE)



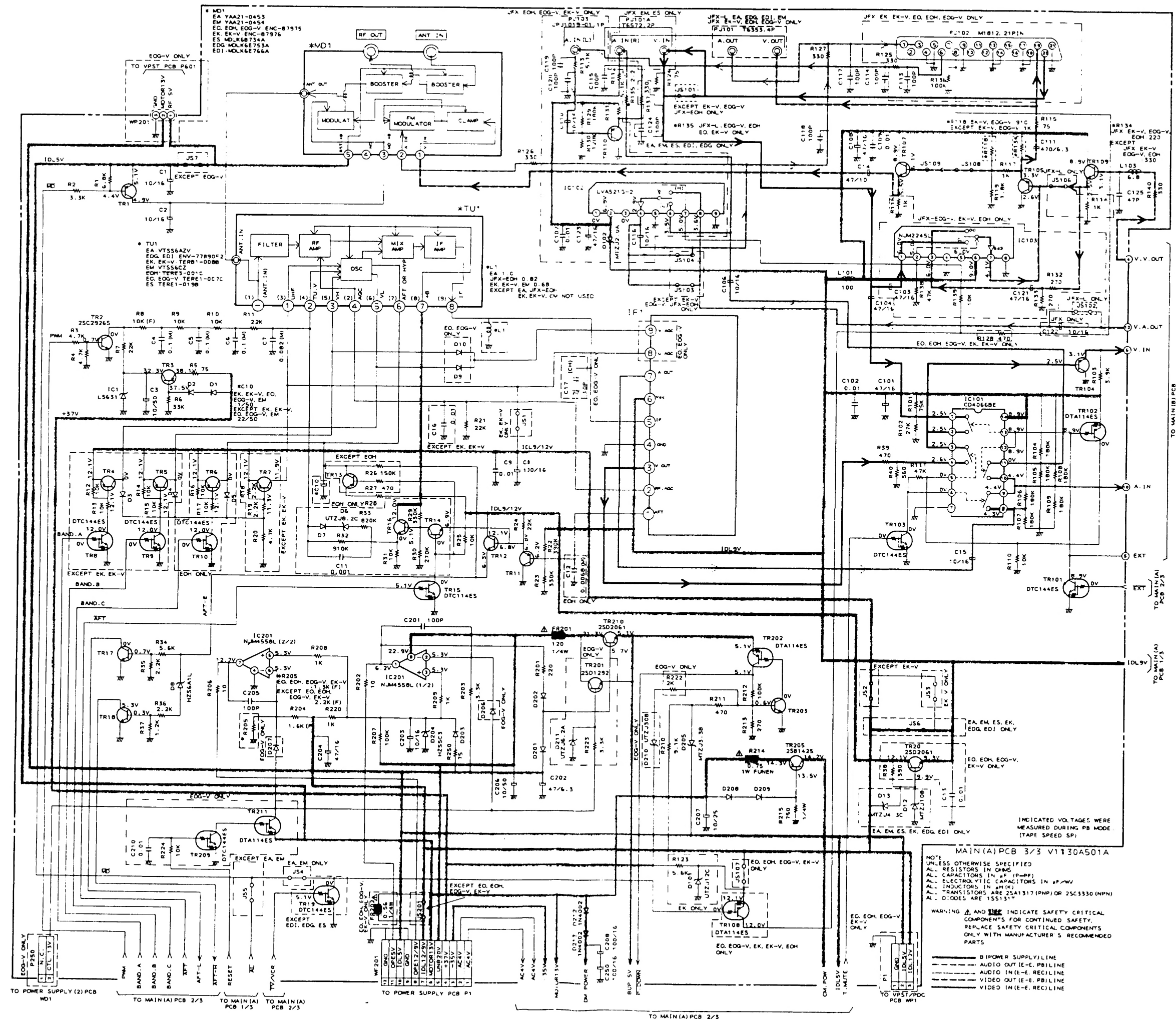
4 VIDEO E-E LEVEL

1. "E-E" (STOP mode), PAL colour bar signal
2. VIDEO OUT & VR401 (E-E LEVEL)
3. • Connect an oscilloscope to VIDEO OUT.
 - * 1.0 Vp-p

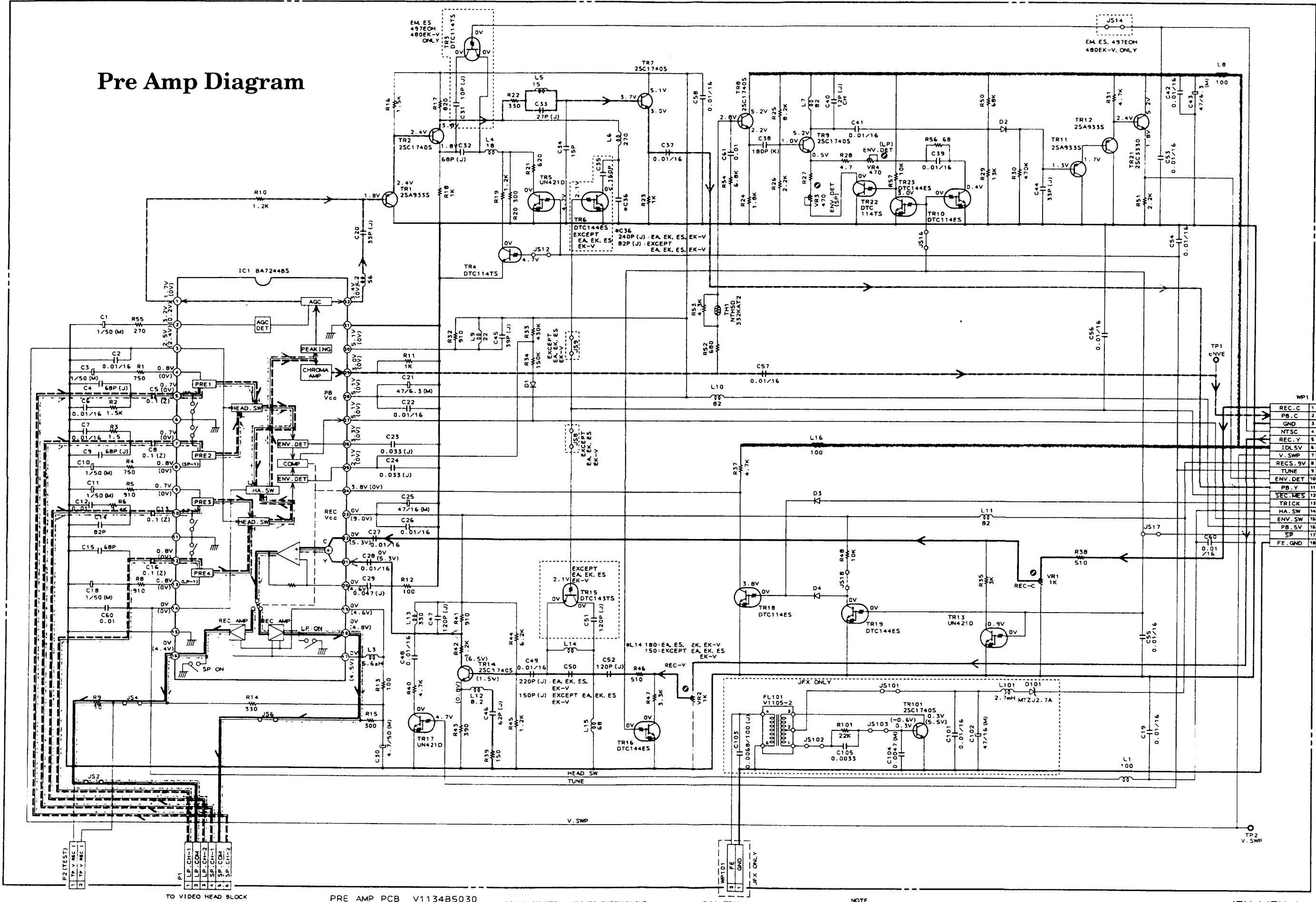




Main Diagram 3/3



Pre Amp Diagram



TO VIDEO HEAD BLOCK

PRE AMP PCB V113485030

8 (POWER SUPPLY) LINE
PB Y SIGNAL LINE
REC Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA SIGNAL LINE

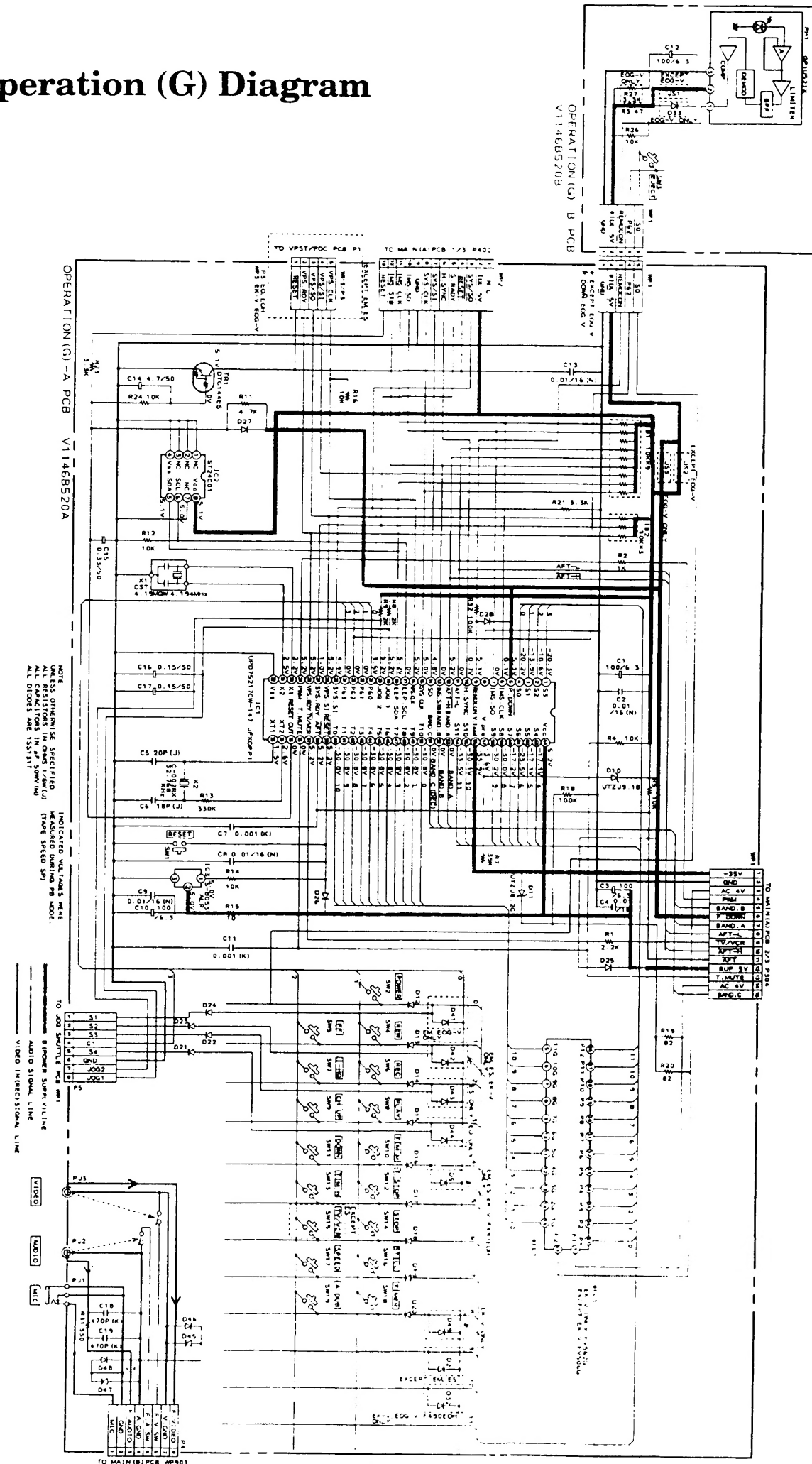
TO FULL TRACK ERASE HEAD

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
() REC MODE

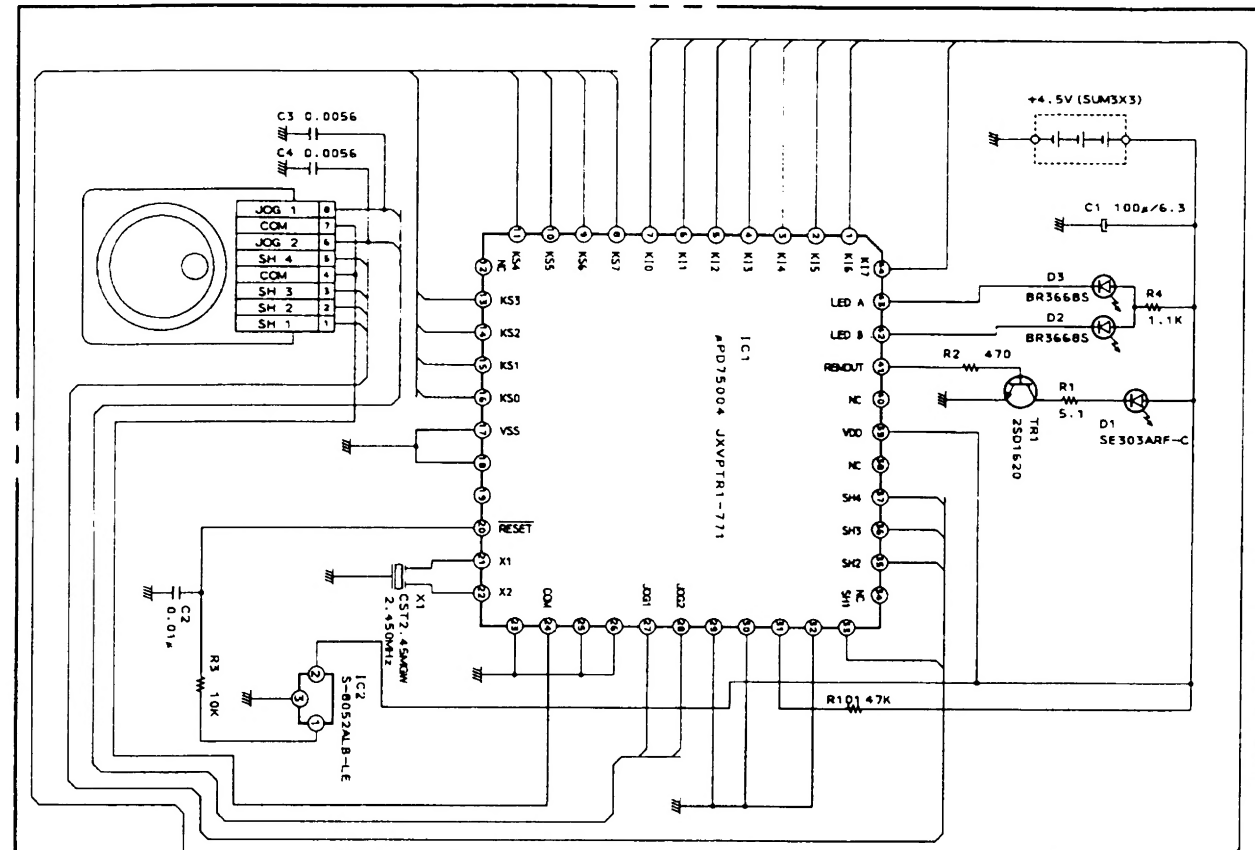
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μ F
ALL INDUCTORS IN μ H (K)
ALL DIODES ARE 1SS131
TRANSISTORS 2SA933S AND 2SC1740 CAN BE
SUBSTITUTED FOR 2SA1317 AND 2SC3330 RESPECTIVELY

JFX/JFX-L
PRE AMP

Operation (G) Diagram



Remote Control Diagram RC-V451E



K10	TV/MCR	1		0	AV	SP/ALP	3	2
K11	SHIFT<	4	TEXT/TV	7	8	9	6	5
K12	SHIFTV		REW Q		DOCK SHUTTLE		INDEXD	
K13	SHIFTA	1-NG	RED	PLAYD	FF MD	GREEN	CYAN	YELLOW
K14	S/N CANCEL	REMAIN	INDEX MR		CHANNEL		DISPLAY	COUNTER RESET
K15	SHIFT>	TIMER		STOP □	00 PAUSE / STILL		INDEX MR	DOUBLE HEIGHT
K16	AUTO TRACKING	REC O	POWER	EJECT	MONITOR		CH UP A	CH DOWN V
K17	OK	PROG LIST	VPT	PROGRAM		STOP / 7	NEXT	MENU

UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS 1/8W (J) ALL CAPACITORS IN μ F 50WV (J)	NOTE UNLESS OTHERWISE SPECIFIED ALL RESISTORS IN OHMS 1/8W (J) ALL CAPACITORS IN μ F 50WV (J)
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RC-V451E/G

RC-V452E